

KERAMIC STUDIO

Vol. X. No. 1

SYRACUSE, NEW YORK

May, 1908



ODAY we are wishing ourselves and our subscribers "Many Happy returns of the Day." With the May anniversary number KERAMIC STUDIO enters on its tenth year. We are promising ourselves that the next year shall show a steady advance over the past. One new feature of the coming year will be the transferring of the Crafts department to the new practical magazine for the art student and crafts worker which will be issued the first of October. KERAMIC STUDIO will then be devoted entirely to ceramics, the space at present occupied by Crafts being devoted to the Happy Study Hours department and other subjects connected with ceramic work. Several special numbers are in preparation. Among these is a series devoted to the flowers of different states. The Texas wild flower number by Miss Willits will be the first of these, followed by "A New England Garden," depicted by Mrs. Sara Wood Safford. "Father Knickerbocker's Posy Patch" will have its exponent in the editor. Other special numbers will be announced later.

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The KERAMIC STUDIO announces a design competition for December as follows:

The best naturalistic study in color of any subject suitable for ceramic purposes, accompanied by detail drawings in black and white. \$20.00 \$10.00

The best decorative study in color of any subject suitable for ceramic purposes, accompanied by detail drawings in black and white. \$20.00 \$10.00

The best design applied to a ceramic form. \$10.00 \$5.00

The best drawing of some natural form with details and conventionalizations. \$10.00 \$5.00

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Questions in regard to colors and other materials will be answered in "Answers to Correspondents." If your letters to the Happy Study Hours Department are not answered in the current article, look in the "Answers to Correspondents" column. Technical information will be found there. The Happy Study Hours will deal more with general topics such as "ways and means", "methods of study", practical suggestions of all kinds.

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The June number of KERAMIC STUDIO will be devoted to work by the New York Society of Ceramic Arts and will be in every way a valuable number. Our naturalistic friends will please bear with us, since there will be only conventional work. The following issue, July, will be filled with Texas wild flowers from the brush and pencil of Miss Alice Willits, formerly of Cincinnati, and connected with the Rookwood pottery.

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Many letters have been received asking about the marketing and criticism of designs for china and the other crafts. Such drawings may be submitted to the editors of the Keramic Studio.—*Study Hour Department*.

NATIONAL LEAGUE OF MINERAL PAINTERS

The National League of Mineral Painters is a Society composed of individuals and clubs, the latter when duly accredited, being represented by delegates on its Advisory Board. Its object is the advancement of Ceramic Art, the evolution of a higher standard and more purposeful work.

The League was founded in 1892 and the first exhibition was accorded a place at the World's Fair, Chicago, in 1903. Since then an annual exhibition has been held and the Society has exhibited with honor at every national exposition, and also at the Paris Exposition in 1900. One of the aims of the League is to encourage the individual by helpful suggestions and intelligent criticism, and to this end the study course was formulated and in 1902 a comparative exhibition organized. The use of clays and the artistic development of form has been largely represented in recent years and has added much to the interest of the annual exhibition. So also has overdecoration given way to simplicity and a following of more dignified design.

Medals have been offered from time to time, stimulating members to earnest and original work, thereby awakening latent possibilities, and bringing before the public truly artistic and highly meritorious conceptions in form and color.

Too much commendation cannot be given the study course, and its far reaching educational value. Clubs and individuals from Maine to California are working out the same problems and have the benefit of careful discriminating criticism from Miss Bennett of the Art Institute, Chicago.

It is only by seeing and knowing what others are doing that we progress and in the League's comparative exhibition, going as it does from one club to another throughout the United States, a vast store of knowledge is brought together that in its scope is invaluable.

In 1902 the Board rendered a decision that any responsible club outside the League desiring the exhibition may receive it by paying \$10 into the League treasury, assuming the packing expense for re-shipment and paying receiving and dispatching expressage. Each administration has added something to the League worthy of remembrance, in the faithful discharge of duty and the attainment of higher ideals. The fire has been kept alive, and enthusiastic efforts have brought forth fruit that shall lend its influence to greater things.

The first president was Mrs. S. S. Frackleton; Second, Madame S. E. Le Prince; third, Mrs. Worth Osgood; fourth, Mrs. Vance Phillips; fifth, Mrs. Belle Barnett Vesey; sixth, Mrs. William H. Farrington.

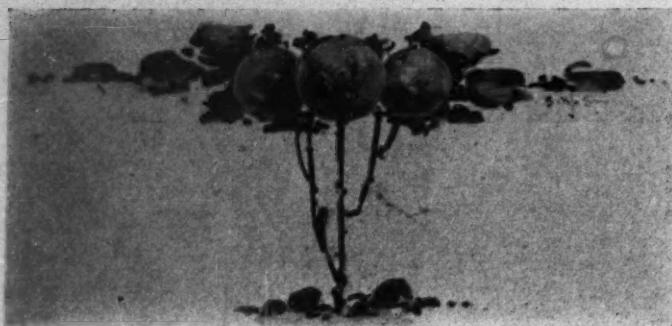
MINNIE C. CHILDS,
Treasurer N. L. M. P.

STUDIO NOTES

Mrs. S. Evannah Price held a successful exhibition of her work in china painting and water colors on April 3d and 4th in her studio, 23 West 24th St., New York City.

The studio of Mrs. M. A. Neal, 1425 Broadway, N. Y. City will be open all summer.

KERAMIC STUDIO



HAPPY STUDY HOURS

I'M so glad I gave you some "pot boiler" suggestions last month, for more than one subscriber has written to the effect that in her desire to study with teachers "whose very names meant inspiration even pot boilers have become glorified as a means to an end"—and the better our pot boilers, the shorter the road to that work in design which each writer has said was her ambition. Not one has said she was content with that which she already knew, and each letter tells of a struggle against such odds that one feels he cannot pass on his little knowledge soon enough. One worker who cannot go away to study this summer asks if she may send for criticism some drawings of the wild flowers that grow so abundantly in her State. Indeed she may, and all others who are interested to make such drawings. She adds: "I really can do hard work if I just knew how." She asks only for a little guidance and is willing to work. This is just what we need in our Ceramic world—students who love their work, who are willing and anxious to develop something for themselves and not merely blindly copy. Even if the copy work must be done for a time, it will be done with much more understanding if one at the same time is studying to interpret nature in his own way, or to make a pattern from some part of a flower growth perhaps undiscovered until now.

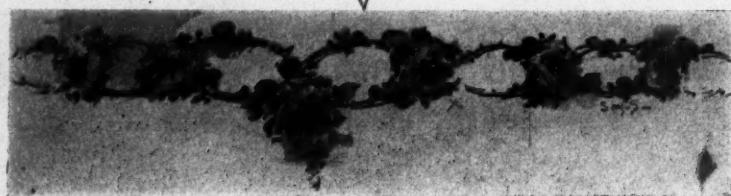
Another worker writes that she doesn't know when she's *right*. Few of us do—but there are certain laws of design which we try to work by, that have come to us from masters whose work has stood the test of time and constant association. "The principles discoverable in the work of the past belong to us, not so the results. It is taking the end for the means." Study the art of other times and other nations, make tracings of designs that please you, and carefully note the spacing and spotting of color, but remember that these honest old workers used the material about them and made it significant of their own time and country. They drew the thing they were familiar with and in which they had learned to see beauty. Knowing and appreciating the true beauty of that which had been created for them, they in turn tried to make even the every day articles of utility beautiful by adding some simple pattern developed from plant or animal life. Never did they destroy the utility function of the object decorated; the decoration was secondary, and was a loving torch added to an already lovely form. If every worker would only remember this.

In selecting a shape to decorate, think to notice if it has any bumps or beads or curves that will interfere with its practicability, if it's to be for a practical purpose, for alas! many of the forms offered to the China painters for decoration are *impossible*. They have no beauty to start with, and no one could make them beautiful, but now we are getting

fine new shapes and the worker can start with the right thought, that is, to add interest and beauty to something already good. Watch yourself closely that you do not overdecorate—that is a fault of most of us. It is much harder to keep a piece fine and simple, than to make of it an elaborate ornate thing. Even in your naturalistic work, this thought of subordinating the design to the shape can be observed. You will be surprised to see how far a little decoration will go, if, before you touch the brush, thought is given to spacing the stems, leaves and buds upon a surface so that the lines of the design will be in harmony with the structural lines of the form. Haven't we all drawn lines (thinking of stems as lines) on a surface, and noticed that the piece at once looked queer and wobbly?

With the drawings of the wild flowers, send drawings of a shape with a design suggested upon it. I'm sure help can be given you, and at first, perhaps in this way you will be led to a better understanding of design principles than by trying to produce more formal or abstract patterns.

I'm suggesting some more pot boiling ideas, and naturalistic though they are, there is yet law and order in the arrangement. In the drawing of the rose wreath, you will notice that the unit (marked) can be spotted five or six times around a plate. Use as many of the extra small rose links as may be needed to make a continuous border. Paint the design and fire without any background. In a second



working wash over the entire surface with a good Ivory, but do not cover the heart or lights of the rose, only its edges. If clean crisp modeling has been done in the first painting, very little detail need be added unless it be an accent to a stem or leaf here and there. A contrast can be had by tinting the space between the rose wreath and the edge of the plate a deeper tone of Ivory than that washed over the center surface, or inside the border may be left clear white china. Try white roses showing soft yellow centers and bands of Silver for a dainty ice-cream plate. The upright rose design can be carried out in the same colors or the roses may be made pink with soft nicely grayed leaves. Let this unit divide the plate into three, five, six or seven parts as may make pleasing spacing, and let the trailers be the link. The little orange is another motif to be used in the same way. Try this on fruit plates, sherbet cups and



the like. A good Ivory for this is made of two parts Yellow Brown and one of Yellow Green applied thinly and pounced. These are what we call "compromise" designs, and you who have trouble in converting your patrons to a more reserved kind of decoration on their table china, will, I feel very sure, satisfy their demand for the naturalistic, and at the same time be influencing their minds, quite unconsciously, in favor of what you want most to do and to give them—simple formal border designs on their tableware. Let us all try to get our minds in condition to receive the best, and trust that we may be ready and able to recognize it when it comes.

—*The Happy Worker.*

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FLEUR DE LIS

Photograph by Helen Pattee

H. Barclay Paist

COLORS for flowers, mix Air Blue, Carmine 53 (or use Rose) for the pale portions, Dark Blue and Ruby Purple for the strong color. Albert Yellow for the tuft of yellow on the three lower petals of the flower, blend gently down into the petal to meet the violet color. For shadows in the petals wash delicately with Grey Green for second fire. Paint the leaves with Grey Green, Olive Green and Dark Green according to the values. Copenhagen Grey makes a pleasing background.

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JACK-IN-THE-PULPIT (Pages 5 and 9)

Photographs by Helen Pattee

H. Barclay Paist,

THE colors for this decorative flower are Olive Green, Dark Green and Violet of Iron. The flower is a pale green streaked with Violet of Iron and green pistil. The stems very pale green, leaves modeled with the two greens. Follow the values in the photograph for the modeling, with the exception of the stems which appear darker than we would show them in color. A background of soft Olive Green or Neutral Yellow will be the most harmonious.

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TREATMENT FOR CYLINDER VASE— SAGITTARIA

April Number, page 281.*

Henrietta Barclay Paist.

For the design use three tones of Olive Green or Grey Green. The flowers are white. The spots (stamens) yellow. The paths around the design of Green Gold or Silver. Outline all with Violet of Iron, Dark Green or Black.

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SHOP NOTE

Owing to the large increase in business, Dorn's Ceramic Supply Store, San Francisco, have opened a retail branch at 1209 Sutter St.

*The treatment given in April Number for this design was a mistake and we give here the right treatment.



FLEUR DE LIS—PHOTOGRAPH BY HELEN PATTEE

KERAMIC STUDIO

JACK-IN-THE-PULPIT (Supplement)

Nancy Beyer.

TREATMENT FOR CHINA

FIRST FIRE.

BACKGROUND—Gray Yellow. Lily—Gold Gray, light tone of Moss Green for the green touches in it. Leaves—Copenhagen Blue, Grey for Flesh, Blood Red toned with a little Black.

SECOND FIRE.

Mixture of Pearl Grey and Black carried over the Copenhagen Blue as well.

THIRD FIRE.

Very thin enveloping tone, Pearl Grey and Dark Yellow Brown; if after the enveloping tone has been gone over the color has fired out, retouch with the colors used for first fire.

WATER COLOR TREATMENT

Tone paper with Gamboge Black and Burnt Sienna, a warm brown tone (not too dark), the lightest note being the touches on the leaves; flower and stem should have a wash of Gamboge and Prussian Blue, the darkest note, a warm dark grey obtained by mixing warm colors with black; where the top of the flower turns over it is blue violet, made with Madder, Lake-Deep and Prussian Blue, the lower part of the flower red violet made with Madder, Lake Deep, Prussian Blue and Raw Sienna, also a touch of the same color on the lower part of the stem. The stripes on the inside of the flower are pure Burnt Sienna. Finally wash over the entire background Raw Sienna and Black, bringing it lower in tone than the highest note which is the touches of yellow green; when dry scrub lightly.

FLEUR DE LIS (Page 13)

Amy F. Dalrymple

IN the study of the fleur de lis, which was from nature, the upper and lower left hand flowers with bud attached were a delicate violet with rich violet lines on lower petals. The right hand flower and the bud above it were yellow with tawny yellow brown lines on lower petals and bud. In painting these lines use Yellow Red with the Yellow Brown. The greens close to the flowers and buds need quite a little yellow and yellow brown, and where shadowed by the blossoms some rich brown green. The other greens cooler with Apple and Shading Green. The writer found some delightful tones of gray for the background by blending the different shades of violet with Myrtle Green. Use quite a bit of blue with the violet and you will have an agreeable color and one that will bring out the yellow flower and the centers of the other two. Use two careful paintings to bring out the realism of light and shade, but for the third painting blend and soften all edges possible. To allow the color of blossom or bud to pass right over surrounding surfaces, either background or foliage, adds much to the beauty of finished work.

EXHIBITION OF THE NEWARK SOCIETY OF KERAMIC ARTS

THE first exhibition of the Newark Society of Keramic Arts was held at Keer's Art Galleries in Newark from March 16th to 21st the inclusive. The members responded to the call of the Club to work hard and well that their first exhibit might not only be a help to themselves but convince their townspeople that really good work was being done in their midst. Mr. Keer, returning after an absence abroad, seeing the exhibit only at its close, said: "I expected to see



JACK-IN-THE-PULPIT DESIGN FOR PLATE—HENRIETTA BARCLAY PAIST

Tint the plate all over with a light touch of Neutral Yellow and fire. Trace the design, tint the panels again with Neutral Yellow, lay Olive Green on leaves, bands and flowers, fire again. Wash the upper part of the flowers with Violet of Iron. Lay the Green on again if it appears weak. Outline all strongly with Violet of Iron.



JACK IN THE PULPIT—PHOTOGRAPH BY HELEN PATTEE

(Treatment page 3)

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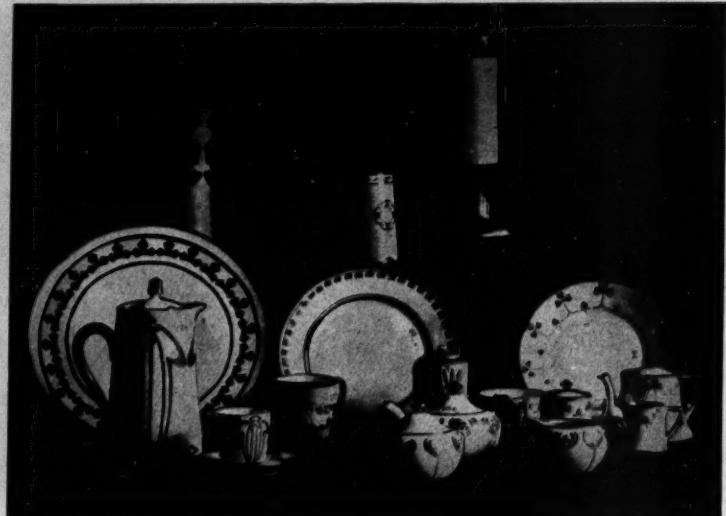
Mrs. Waterfield
Mrs. Waterfield
Mrs. Ryerson
Mrs. A. Van Ness

Mrs. Waterfield
Mrs. King
Mrs. Granberry

only flower painting but this kind of work is on a thoroughly artistic line and is like what one sees abroad in the arts and crafts shops."

The Club as a whole has given much time to the study and designing of table service, and many members confined their exhibits to that work. No one showed more versatility, strength and charm in her work than Miss Jetta Ehlers. A tankard with a grape motif was a hard problem splendidly handled, but for charm and an all the year round joy to live with, the afternoon tea set in blue and white was chosen as the choicest part of her exhibit. To make a perfect setting for it, the design was repeated in the same blue on a linen tea cloth. Miss Ehlers also showed some fine figure and miniature work on porcelain.

Mrs. Carpenter's punch bowl, with its design frankly adapted from historic ornament, was a splendid piece of work in design, color and technique. Mrs. Woodruff showed a set of cereal bowls and plates in white and gold, done with nice thought and feeling. Mrs. English had a tea jar which in its quaint charm seemed more to express herself than did her wall plaques. Mrs. William Smith's exhibit included, besides some interesting plates, a bowl in red and



Miss Ehlers
Mrs. Hawkins
Mrs. Harrison
Mrs. Robert Madison
Miss McKenzie
Mrs. Waterfield
Miss McDougall
Mrs. N. H. Carpenter

HONOR TABLE—SOME OF THE BEST THINGS SELECTED



Miss Ehlers
Mrs. Voorhees
Mrs. Wm. L. Smith
Miss Helen Jephson
Mrs. Wm. Woodruff
Mrs. J. N. Waterfield
Mrs. Voorhees

Miss McKenzie
Mrs. Smith
Mrs. Woodruff
Miss Ehlers
Mrs. English
Miss Harrison



Miss Harrison
Miss Witter
Mrs. Carpenter
Mrs. Smith
Mrs. King
Mrs. Cummings
Mrs. Van Ness
Mrs. English
Mrs. Tilman
Miss Leach

gold which was finely handled in a pleasing, snappy way. Mrs. Waterfield had a large exhibit of vases and jars, done after fine models, but of her own; a bouillon cup in red and gold was the best and gave a nice *staccato* note to her exhibit.

Miss McKenzie proved herself to be a good worker, showing a chocolate set in white and gold, and a tea set in tones of blue, but her nicest bit was a tea jar with simple conventionalized flower decoration. Miss Harrison's work was worthy of a quiet study by those who are inclined to ignore technique; her plates and bowls for the table and designs for milk pots were all satisfying and appropriate and executed with exquisite feeling.

Miss Jephson had handled successfully the difficult problem of a punch bowl with a grape design in Persian red, silver and black. Mrs. Hawkin's vase in tones of brown was nicely thought out and her large panel of the interior of the Antwerp Cathedral was splendidly handled. One of the newer members, Mrs. Voorhees, showed by her work that she will be one of the strong workers in the Club. Her vase in greens showed nice feeling for line and color, and a little bonbon cover with rose motif was a lovely bit.

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Afternoon Tea Set by Miss Ehlers

Mrs. Van Ness proved herself to be with the real workers, showing a dainty breakfast set in greens.

Some of the members had only one or two pieces, but these were worthy of mention. Among these were Mrs. King, Mrs. Ryerson, Mrs. Madison, Mrs. Granberry, Mrs. McDougal, Miss Crane, Miss Wittle, Mrs. Tillman, Mrs. Cumming, Miss Perriam and Miss Leach. Many have done no studying aside from the working out of the monthly Club problem, but work they all do toward better design and better home decoration.

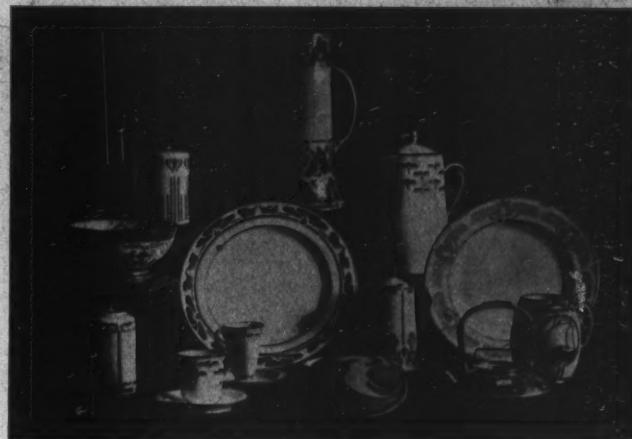


HISTORY OF THE NEWARK CLUB

Mrs. Wm. L. Smith.

THE Newark, (N. J.) Society of Keramic Arts has celebrated its fourth anniversary by a first exhibition of the work of the club members.

This recalls the time when each worker worked alone, lacking the inspiration and help which members alone can give and wishing that in some way China Decorators might get together. Two members of the New York Club, but residents of Newark, Mrs. Carrie Wood Rosegrant and Miss Jetta Ehlers sent out invitations to those who would be interested in the founding of a club and the result was twenty workers anxious to form the Club. It was then and there decided that the Club should be a study Club and all who were willing to make their own designs, to work out their own salvation with faith and diligence, were eligible for membership. The result has been an unusual number of unusually original designs, and that many of those who had



Miss Ehlers

done but little and who felt they could do nothing are among the best workers.

The success of the Club is largely due to Mrs. Sara Wood Safford who was almost sole critic for two years and now comes to the Club in that capacity more frequently than any other artist, although much help has been received from Mr. Marshal Fry, Mr. Hugo Froehlich, Miss Maud Mason, Miss Caroline Hofman, Mrs. L. Vance Phillips, Miss Mira Burr Edson.

The first officers of the Club were: Miss Jetta Ehlers, president; Mrs. Carrie Wood Rosegrant, vice-president, Mrs. W. L. Smith, corresponding secretary; Mrs. F. N. Waterfield, recording secretary; Mrs. A. Van Ness, treasurer.

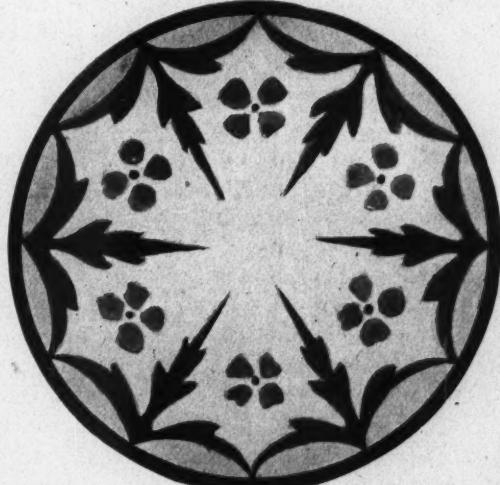
The present incumbents are: Mrs. N. H. Carpenter, president; Miss Jetta Ehlers, vice-president; Miss Mary Harrison, recording secretary; Mrs. Francis King, Jr., corresponding secretary; Mrs. S. Warren Granberry, treasurer.

A yearly banquet in May, a social meeting in December give an opportunity for the making of friendships.

The meetings are held the last Thursday of every month in a beautiful room in the Free Public Library and all the resources of the Library are at the disposal of the Club.

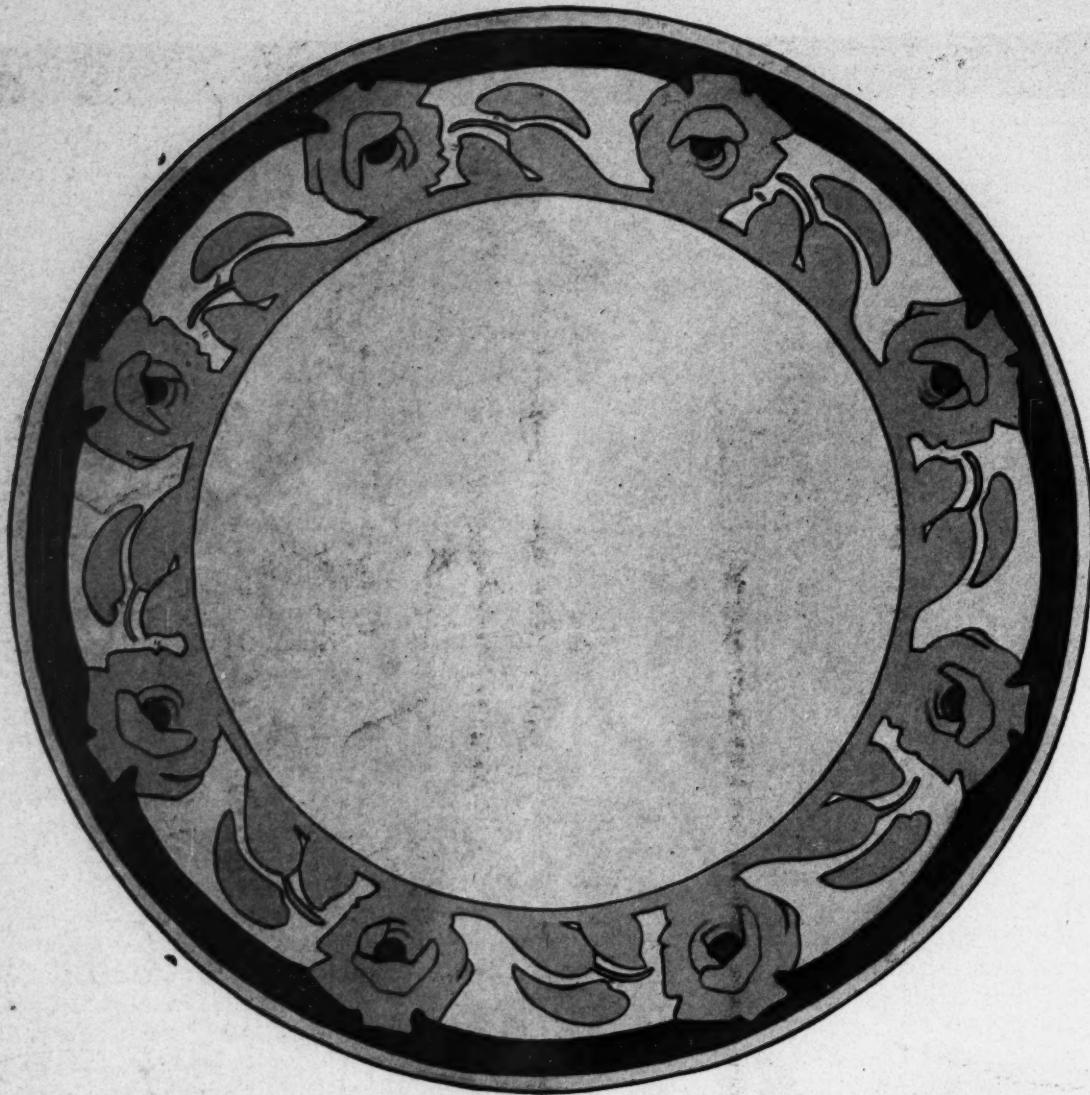


MUSTARD POT IN GOLD, IVORY AND GREY—C. BABCOCK

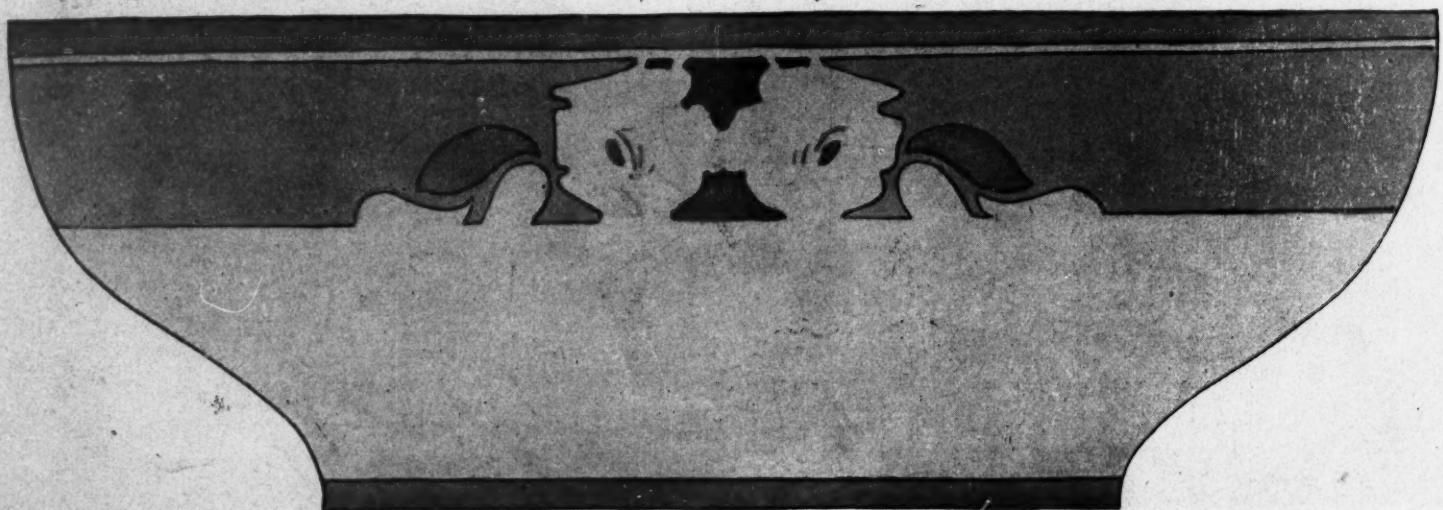


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ROSE DESIGN FOR SALAD PLATE IN PINK, GREY AND GOLD—ALICE B. SHARRARD



SALAD BOWL IN PINK, GREY AND GOLD—ALICE B. SHARRARD

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JACK-IN-THE-PULPIT—PHOTOGRAPH BY HELEN PATTEE

(Treatment page 3)

KERAMIC STUDIO

METALLIC DEPOSITS ON GLAZES

(CONTINUED)

Louis Franchet

APPEARANCE OF METALLIC DEPOSITS

The deposits obtained in the reducing atmosphere may, according to circumstances, present altogether different aspects. Glaze No. 2a, for instance, may give a smooth metallic surface, with a coppery appearance, without any iridescence; or a metallic iridescent surface; or perhaps one face only of the vase will be iridescent, the other face having a smooth surface. If the vase is submitted to another reduction, the smooth metallic surface may come out with iridescence, and inversely the surface which was iridescent after the first firing, may take a smooth metallic appearance, after the second reduction. If a vase showing one face smooth and the other iridescent, receives a second reduction, there will often be inversion, that is, the iridescent face will become smooth and the smooth face, iridescent.

I must call attention to another phenomenon. Very often the metallized surface, instead of being glossy, comes out mat but always a glistening mat. In my experiments to determine the causes of this phenomenon, I have mostly used iridescent glazes. A vase with one of these glazes, will, after reduction, come out with three different aspects: 1° every face may be glossy; 2° one face glossy, the other mat; 3° every face mat. Sometimes many consecutive firings in the same muffle with the same glaze applied over the same body, will give pieces constantly mat, then with still another firing, the mat effect will disappear and be replaced by a very glossy finish; or, in the same muffle, there will be a mixture of mat and gloss, as well on pieces in the center of the muffle as on those on the sides.

The glossy or mat finish of a piece is generally caused by its degree of vitrification, and it seems strange that this will vary on the same piece, placed in the center of the muffle, where the temperature is generally the most even. This phenomenon however is frequent and is undoubtedly due to special chemical combinations under the influence of reducing gases. This is shown by the fact that iridescent glazes containing bismuth oxide come out mat more frequently than any others, while the reverse should be the case, since this oxide gives to glazes a great fusibility.

My researches having been made with glazes, the absolute vitrification point of which is 970° C. (cone 09), I have tried, in order to obtain glistening mat effects, to incorporate metallic oxides into glazes developing but coming out mat at that temperature, the point of vitrification having been delayed by the addition to the glaze of zinc oxide, titanium oxide and specially alumina. I have observed that in such experiments not only the metallic deposit was formed with difficulty, but that nearly every time there was none, while on bright glazes fired at the same time the metallic deposits were formed quite easily.

It seems then that there is a relation between the action of reducing gases and the degree of vitrification of the glaze, the gases acting with much more energy over bright glazes. It seems also that carbon monoxide and hydrocarbons have a strong action only over glazes which are glossy at the time the reduction begins, and that the devitrification is really due to the gases. I have often withdrawn a piece from the muffle before the reduction was complete or after it had been too prolonged, but I have never obtained a specimen of mat effect. In the first case the iridescence was little developed, in the second case it was destroyed and the glaze had become exceptionally glossy. Inversely it is

when the reduction has been carried on as regularly as possible that the greatest number of mat pieces is obtained, in some cases the whole kiln giving mat pieces.

I have made experiments also to find out if the more or less high temperature reached had some effect on the mat aspect. I have fired glazes 1a to 6a, successively and on different bodies, at 950° C., 920° C., and 890° C. (the normal degree being 970° C.) At 950° C. there was no appreciable change in the appearance and intensity of the iridescence; at 920° C. the mat tone was very similar to that obtained at 970° C., but the iridescence was not so marked; at 890° C. the metallic coat was somewhat rough because of insufficient firing; the iridescence, although weak, was, however, noticeable in glazes containing copper and bismuth oxides, while there was almost none with the silver mixtures.

Before concluding these remarks on metallic deposits obtained by reduction, it seems necessary to disprove a legend to which much faith has sometimes been given: I mean the story of metallic reflections *under the glaze*. It has been claimed that the famous Italian iridescent faences were covered with a translucent glaze under which the metallic deposit was. This assertion is absolutely false, as the mode of formation of the deposit would make the operation impossible. In fact the glaze then should be very fusible and sufficiently rich in lead and alcalies for the point of devitrification not to be above 950° C. This glaze would have to be fired in an oxidizing fire, in a reducing fire the lead would be reduced and the alcalies would form on the surface a white efflorescence. An oxidizing firing being necessary for this covering glaze, the iridescent deposit would be destroyed. There are other reasons why this application would be impossible, but it is not necessary to go into more details here.

IRIDESCENT GLASS

One may obtain on glass, as well as on pottery glazes, a metallic iridescence of great richness, by incorporating either into the glass itself, or into a relief enamel applied over it, the same metals which I have described for faience work. It is also possible to apply ochre mixtures, as is done with faience, but this process is difficult because of the nature of glass; besides, the iridescence thus obtained is seldom very marked.

When the metals are introduced into the glass, the latter is worked according to the usual process of glass manufacture, it is then reheated to a lower temperature than the point of devitrification, but high enough to make possible the action of reducing gases. If one has to deal with a translucent glass, colorless or slightly colored, one may bring the gas current inside, with a tube. Iridescence is then produced but generally of weak tones.

It is much better, and this is the process generally used, to incorporate the metals into a fusible enamel which is applied on the glass, either as background, or in drops, spots or streaks. The firing is done at 620° C. (cone 021) exactly; then the kiln is left to cool down to 450° C. at most, when the reduction is given as for metallic deposits on faience.

An enamel fired on glass must not crackle when cooling, nor cause the breaking of the glass; both must have the same coefficient of expansion. The following is an enamel which will act well with glasses such as are generally found in the trade, and which will stand the addition of coloring oxides without hardening in any appreciable way:

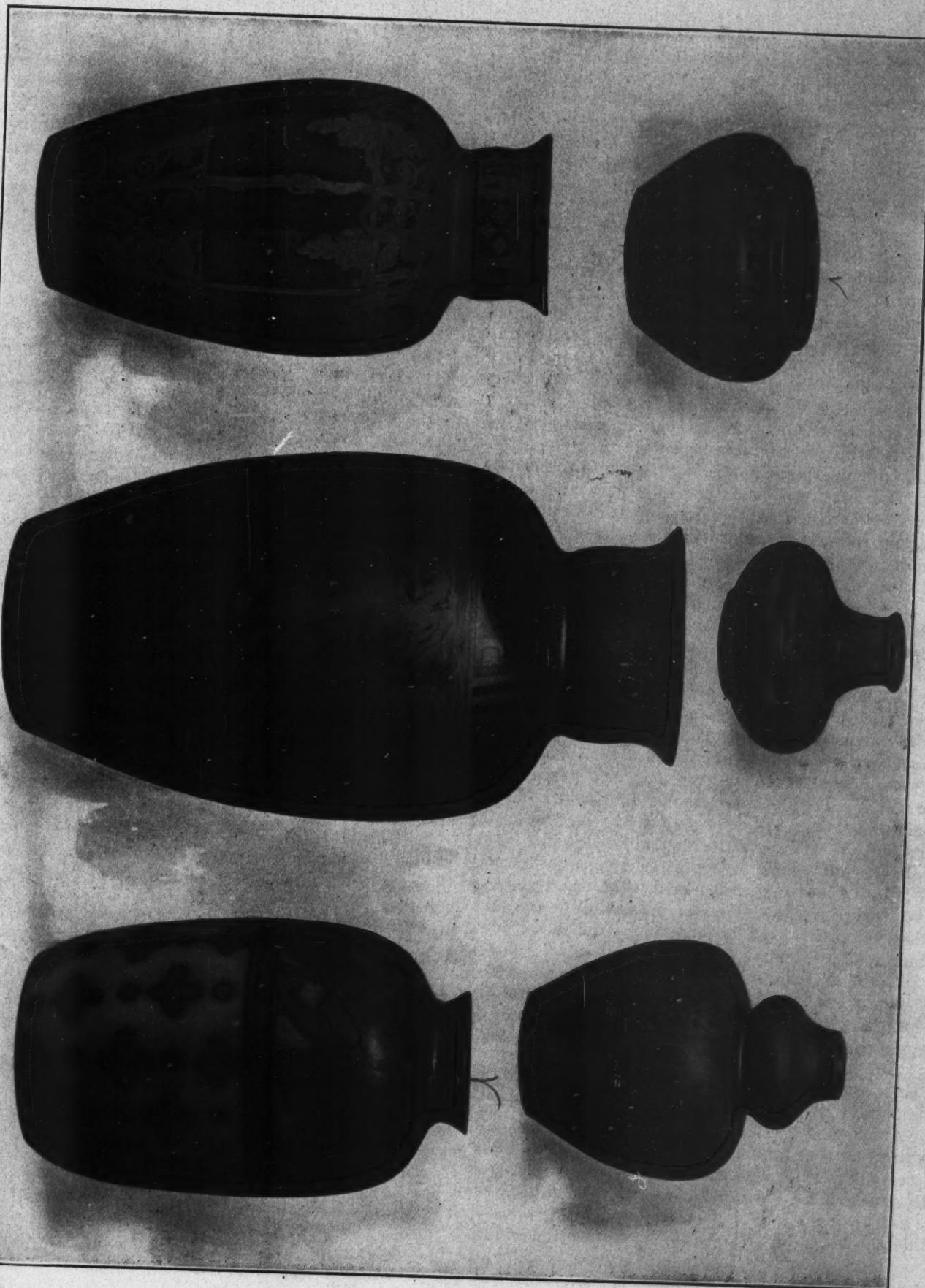
Quartz	19
Red lead	73
Boric acid	8

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LANCASTRIAN LUSTRE POTTERY, IN THE METROPOLITAN MUSEUM OF ART—DESIGNS BY LEWIS F. DAY AND WALTER CRANE

BY COURTESY OF THE AMERICAN POTTERY GAZETTE



These ingredients should be thoroughly mixed, fritted, then ground wet.

The salts of silver, copper and bismuth are added by simple grinding and in the same proportions as for glazes 1a to 6a.

Iridescence on glass is specially noticeable because of the beauty of tone which is given by the translucency of the material on which it appears. Metallic deposits on faience are influenced by light only on one face, while, in deposits on glass, the light rays penetrate the whole mass and determine the development of tones of a variety and brilliance which are modified by the color of the glass and its refractive properties.

B—METALLIC DEPOSITS OBTAINED WITHOUT REDUCTION

We have seen that, under the action of carbon monoxide and hydrocarbons, glazes could be covered with metallic deposits of a glistening nature, the aspect of which could be modified at will. As the process presents difficulties, ceramists have tried and have partially succeeded in obtaining similar effects in an oxidizing fire. But if the metallic effects are somewhat similar, the physical and chemical phenomena which are so characteristic of reduced deposits, will never be found in the oxidizing series. In the latter, the metallic or glistening effect is only due to the more or less marked division of molecules, while in the former there is a chemical reaction accompanied by physical phenomena due to a molecular grouping which can be modified ad infinitum.

In oxidized deposits there is not, as in the case of reduction, a combination of the elements of the glaze with the metal which produces iridescence; the metal here is simply deposited over the surface of the glaze, either in a finely divided state which is obtained by solution in some essence, or in a concentrated state which produces a smooth, non-glistening covering. The best example of this class is gold in the particular form which is called by ceramists *liquid bright gold* and which we will study later on, also platinum which, in the form of protochloride, is soluble in fat essences, and consequently may be applied in thin coats over the glaze.

When one wishes to produce metallic deposits over glaze or glass, in an oxidizing atmosphere, it is necessary to add to the metal a certain quantity of bismuth oxide (about 10%), which will act as a flux, otherwise there would be no adherence of the metallic deposit, as the metal does not combine with the silica or other elements of the glaze. In deposits produced under the action of reducing gases, not only is the addition of bismuth oxide unnecessary for this purpose but this metal is used only to obtain the blue color, or the green color when combined with silver.

Metals in the state of organo-metallic compounds must always be dissolved in some fat essence (turpentine, lavender, etc.); the solution is applied over the glaze with a brush, then the firing is done at about 650° C. (cone 020); organic matters are destroyed, and the metals appear, either with a smooth and brilliant finish, or in the iridescent state, according to the degree of concentration of the solution. These different aspects however are always stable, and cannot be modified, either by a change of atmosphere, or by any increase of heat within the normal limits, that is, anywhere below the point of fusion of the underlying glaze. We have seen that conditions were entirely different with deposits obtained by reduction; these we could produce, then destroy, to see them reappear, modifying shades and aspects

at will, simply by changing the length of firing and reducing conditions. It is important to insist on this point, as it shows absolutely that metallic deposits possess entirely different properties according to the nature of the gases which produce them.

It is possible in many ways to make metallic combinations which will be soluble in essences, but there are some unavoidable causes which prevent the metallic coat from having the intense tones which may be observed in reduced deposits. One of these causes is the lack of great solubility of the organo-metallic compounds in the essence; another, and the more important, is the difficulty of combining a sufficient quantity of the metal with an organic substance.

However an exception should be made for platinum and gold. The latter is now most generally used in the shape of organic combination for the gilding of porcelain, faience and glass. It remains over vitrified substances in a very brilliant state and does not need to be burnished. It is known in industry under the name of *liquid bright gold* or *gold lustre*. Its preparation is too well known to be fully described here. The different processes used vary but little: the gold salt to which bismuth oxide is added is generally dissolved in balsam of sulphur, and to the compound thus obtained is added turpentine or oil of lavender. The method which consists in dissolving the precipitate of ammoniate of gold in the essence is not used any more.

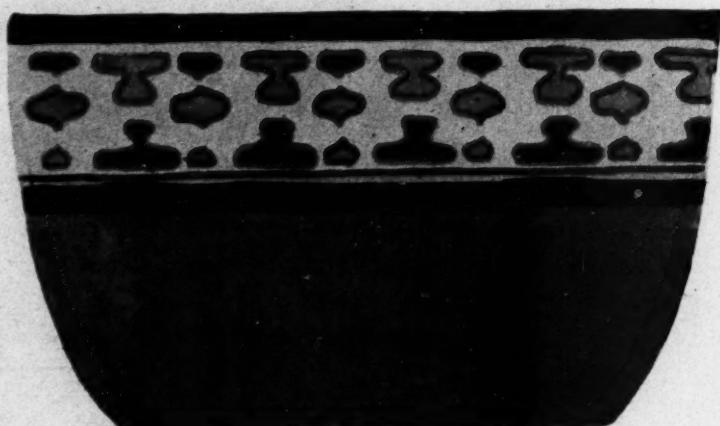
The state of concentration of the gold solution is a very important point. If the solution is concentrated, the gold forms over the vitrified surface a perfectly uniform coat, opaque, brilliant and non-glistening; if it is very diluted, there remains only a purplish or pinkish coloring, translucent, and with weak iridescence, which is called *Burgos lustre*.

Silver in organic solution gives a yellow or brown coloring over a white glaze; but, over a cobalt blue glaze it produces a green iridescence and this lustre is known as *cantharis lustre*. If the lustre is in the presence of lead oxide it produces a great variety of iridescent effects and is called *litharge lustre*.

The shades of color may be varied ad infinitum by mixing several metals in the same solution, or by superimposing over the glaze solutions of various compositions.

In order to prepare platinum lustre, it is sufficient to grind the protochloride of platinum with fat essence.

(TO BE CONTINUED)



BOWL—LUCIA JORDAN (Newcomb College)
In several shades of blue and grey, all outlines and handles in gold.

KERAMIC STUDIO

13



FLEUR DE LIS—AMY F. DALRYMPLE

(Treatment page 4)

KERAMIC STUDIO



PITTOSPORUM—EDITH ALMA ROSS

(Treatment page 18)

DESIGN FOR THE DECORATION OF CHINA

THIRD PAPER

Caroline Hofman

TO teach color when you have a class before you and can show them beautiful examples of color is one thing, and to teach it to persons miles away, by written words, is quite another and more difficult matter. So we must consider this more in the character of a talk upon the subject, which is intended to give suggestions for study, than in any way a definite exercise such as the former papers have been.

In practising color harmonies it is much better to begin with colors which are "toned," that is, slightly grayed; and not attempt to combine brilliant colors until we have trained our eyes to distinguish those that are harmonious. Color has, first of all, "hue"; that is, one of the distinct hues of the spectrum; red, violet, orange, etc.; next it has "intensity"; it may be so vivid as to fairly dazzle our eyes, and that is "full intensity," or it may be so dull as to be scarcely distinguished from grey, and that is very low intensity. Third it has "value"; a color may be very intense and yet as dark in *value* (against white) as a very dark grey would be, or it may be very intense and almost as light as white itself. You can prove these propositions for yourselves, as we have only time here for a statement of the facts.

There are schools that believe color-harmony can be taught as a science, instead of being the result of training in appreciation, but personally I do not believe that they have yet proved their theories or produced colorists in that method.

Color appreciation is a thing to be cultivated like any other fine taste; and those who are not actually color-blind



Composition II—Showing flat decorative treatment for porcelain slab.



PERSIAN BOWL

Design adapted from old Persian lustre ware bowl in the Metropolitan Museum. COLOR SCHEMES—General tone, including everything in the design which has photographed in the lightest tone, soft grey-orange. All the medium grey of the design represents a clear blue green, very soft in quality. The darkest tone in the design represents a very dark warm grey, almost black, but softer in quality.

can cultivate it to good result if they are really eager to do so. As students then, seeking a knowledge of color, let us try our first exercises with those that are toned; and for simple work along this line the cheap "water-color crayons" of French manufacture, which come in round boxes, are excellent.

For suggestions in color harmony we find of late many color prints; those of Professor Dow, which he calls the Ipswich Prints being especially beautiful and simple in their color and composition, while some reproductions of Japanese and of English prints, are also used as suggestions by designers in planning "color schemes".* We have to choose our color models very carefully, or, if we doubt our own judgment in the beginning, appeal to some one whom we know to be a good judge of color harmony when we come to make our selections.

Another, and an endless source of study in seeking color schemes is nature herself; but here the beginner is liable to some confusion unless he realizes that nature must be interpreted rather than copied. Suggestions she gives us lavishly,—but we must not be too literal in following them.

A flower, a leaf and the stem of a plant will very often give us valuable hints as to colors which harmonize; but in the leaf, especially, we must allow more grey than we at first suppose, as leaves reflect the sky, or any light color around them, so that their greens are never harsh and "edgy" in color.

With this in mind we can make many a color-harmony from the flowers about us. A daffodil, for instance would give us:

Parts of Plant	Colors	Values
leaves	blue-green	dark
flower	yellow and orange	light
calyx and stem	yellow green	medium
bract	orange (like dull brown)	medium

* We have not spoken here of old Japanese prints, as they are usually too valuable to be within the reach of all students.

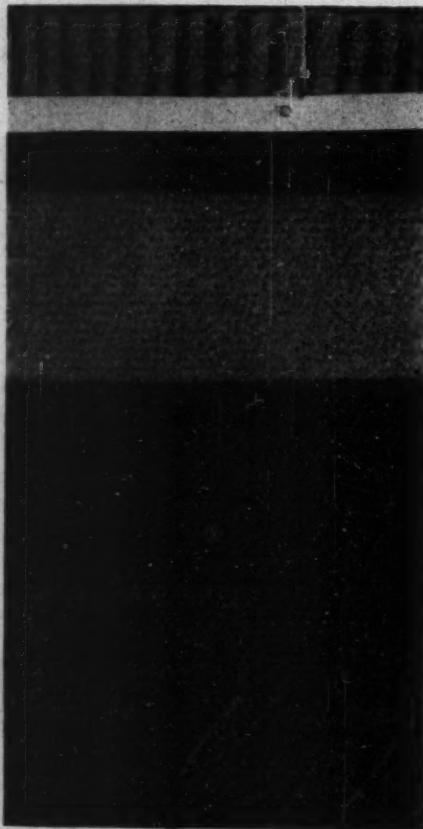
As nature portions the amounts, we have the largest of blue-green; next yellow; and third, dull orange-brown and least of all of the yellow-green.

The bract of the daffodil comes sometimes very near being of a violet quality, and there is much in the way that we feel these colors that gives us quality in our color work. If the color-reproduction of our little landscape is successful you will recognize its having been suggested by an iris, the colors having been somewhat toned, and a violet grey added because in landscape we always need something of the grey quality, unless the material is stained glass, in which case the black leading around the glass gives us relief from the bright colors. An important thing for us to remember in our color harmonies as well as in the dark and light arrangements is the principle of subordination. We must not have all of one color in one spot but must break it into areas of different sizes, as you will appreciate from studying a good oriental rug.

Perhaps you will think that this is not nature's way of arranging color, but if you will consider for a few moments you will realize that this is exactly what she does, although it is often less apparent than in a rug pattern.

A flower, for instance, has several petals; which arrangement breaks the color somewhat, and usually we see one or more buds near it, showing smaller touches of the same color; then the leaves are in different shaped masses of one green, while the stems and calyxes give us smaller shapes of another, usually a yellower green, with sometimes a little red violet running into the colors. And if you follow up this line of study you will be surprised at the beautiful abstract color schemes you can glean from it.

If you have only time to make tables of color in a way like this, you will soon have a great deal of valuable material for your decorative work, suggested perhaps by a growing flower, a beautiful sunset, a colored stone, or any of



Color scheme arranged in chart form for a memorandum.



Composition I—Taken from landscape by Hobbema. To be translated into quite flat tones (as in Composition II), and colored according to suggestions.

the thousand and one lovely color schemes which nature is constantly showing us.

These tables or diagrams of color were, I think, first used by Professor Dow in his teaching, and have been of great value to many students of design.

In planning a color scheme to be used on china there are several good ways of working, but for directness I have found nothing better than the crayons, (sometimes called colored chalks, although they are the size and shape of slate pencils) referred to before. If you will pin a piece of charcoal paper upon your drawing-board I will try to give some suggestions as to the handling of them. Use first upon the paper a very light tone of soft charcoal, lightly rubbed smooth with a cotton rag. Then, with the crayon that is of a yellow-ochre color rub a light tone over the charcoal. To make this even you may need one of the small grey-paper stumps sold by art dealers for a few cents a dozen, and called "tortillons."

You will find that a tone of color rubbed in this way looks much darker than when it lays more on the surface of the paper, but you will soon learn to allow for this.

If you want the tone a little warmer (redder and yellower), touch in, here and there, the color you require and work it lightly into the paper in the same way.

Now you have a small sheet of toned paper ready for your design. Upon this you will trace some design that you have made, or it would be better to make two outlines of the design on the toned paper, so that you can try different color schemes.

As a china painter you no doubt have many "test-pieces" upon which you have painted samples of mineral colors and fired them, and as, with a little practice, you can imitate these colors very closely with your crayons it will make your design much more practical to have these beside you to compare, as you work out a color scheme suggested by a print or some other good model.

If you will fill in, very flatly, the design you have traced, with two harmonizing colors that are of the same value, and enough darker than your tone to show the design in good firm spaces when you look at it across the room, you will have reached a successful result. For you can determine at once just how your design will look in mineral colors, which you can not do by the use of *washes* of water-color. (I will speak, further on, of another water-color process which is most useful.)

Always try to keep the edges of your design very firm without using an outline, but if you must fall back upon the use of an outline be sure that it is a *good* line; wide enough to have some character; and not of a staring black, but rather of a clear dark gray.

The fact of working our colors over a toned paper gives them something in common and makes them easier to harmonize; and when trying to harmonize two colors that are at odds with each other we can often mix a little of the one color with the other. There is danger, in doing this, of getting them "muddy"—dingy and disagreeable in quality,—but if done carefully it is a very useful resource.

One small box of the crayons will give us an endless variety of colors, by drawing one into another, and by graying and darkening, when necessary, with charcoal, and even with a black crayon. The assortment is usually weak in yellow greens and in strong yellow, but these can be bought in the soft pastels (that are sold by the stick), and used in connection with the others.

While water-colors, handled in the "scrubbed" manner, undoubtedly give us most charming and useful effects for china designers (as they can be followed out almost exactly in mineral colors), it is a somewhat slower and more difficult process, and so I have not suggested it for beginners in color designing.

Oil-colors are easier to handle for this purpose and are used by many designers; for oils are more opaque, and a color that is slightly off what one wants can be painted out at once, and thus the whole idea of the painter be executed while it is freshly in mind.

For this work a medium canvas or academy-board is used, and these, too, are always improved by having a tone of soft yellowish gray rubbed into them before the design is drawn. For the tone a little White, Yellow Ochre, Madder Lake, and a touch of Black will make quite a range of tones to select from, and must be first mixed with a palette knife and then rubbed in with a big brush, using a great deal of turpentine to make the color flow. With your brush work it back and forth, up and down, over the surface until you have a smooth even tone of almost transparent thinness. Even if you should want to represent a white background for your china design it will be a softer and more interesting white for being over this warm tone than it would be over the ordinary cold gray of the canvas. As I have said in regard to the work in colored crayons, we have, above all things, to keep our designs clear and flat in color or they will not work out satisfactorily. We have to mix all our colors first on the palette, with a knife, and to be sure that there is enough of each to last throughout the design. In applying the oil-colors kerosene oil makes



LANDSCAPE WITH POPLARS

(This did not reproduce in the flat tones of the original scrubbed water color; in copying it each tone should be kept flat to give the effect intended.)

COLOR SCHEME, SUGGESTED BY PURPLE IRIS—Trees of foreground and middle-distance soft greyish violet (Blossoms of Iris). Dark spaces in foreground and sward of middle distance, blue green of soft quality (Leaves of Iris). Road and light spaces in foreground, warm brownish grey (Bract of Iris). Trees and sward in distance, blue grey (Reflected sky-color on leaves of Iris). Sky, pale greenish yellow with soft clear orange (Centre of Iris). This is to suggest how each color in the growing plant can be used in some part of landscape, but the colors must be used in a low key and not in the full intensity of the colors in the flower.

an excellent vehicle; keep a little in the palette-cup and dip your brush into it occasionally.

We are so rich in our range of mineral colors, we have so many hues and tints and tones which can be applied to china, that a careful study of the way in which to use them with taste and refinement is surely demanded of us for that very reason.

If often takes considerable experience to convince ourselves that there is much more beauty in combining just two colors that are carefully chosen and harmonized than there is in a riot of color where many colors, each beautiful in itself, are quarrelling for supremacy.

The great masters in any art use very simple means of expression, but wonderfully well chosen ones.

(TO BE CONTINUED)

EXHIBITION NOTE

The Arts and Crafts Society of Portland, Oregon, will hold an exhibition of general Arts and Crafts objects, beginning May 15th and continuing for three weeks. Exhibits should be delivered to the Arts and Crafts Society, Art museum, Portland, not later than May 10th, with charges prepaid. Return charges will be paid by the Society, or work will be placed on permanent exhibition and sale in the Society's room, if desired.

PITTOSPORUM (Page 14)

Edith Alma Ross.

THE pittosporum is a native of Japan and in that country grows into a small tree. With us, it is cultivated as a shrub for its dainty fragrant blossoms. The flowers open out white but change in a day or two to a sulphur yellow, as some species of honeysuckles do. The leaves are evergreen and the flowers are borne in sessile clusters at the ends of the branches and are followed by bunches of berries.

The treatment for water colors will need a dainty grey green background with a violet tinge. Olive Green, Antwerp Blue, and Crimson Lake will give this color.

For leaves, use Olive Green, Hooker's Green, Aureolin, and Antwerp Blue.

The flowers will need Aureolin and Burnt Sienna for the yellow ones, and greenish shadows for the white blossoms.

The centers are a decided dark green. The stems which are woody, will need Vandyke Brown, Crimson Lake, Black and Burnt Sienna.

The treatment for mineral colors is similar to that for water colors: Egg Yellow, Deep Blue Green, Olive Green and Dark Green will give the leaves. Egg Yellow and Yellow Brown for the flowers; Brown Green and Deep Blue Green for the centers; Ruby Purple, Black and Yellow Brown for the branches.

A monochrome treatment in greens and white or Copenhagen Blue and white would also be very effective for this study in the Japanese style.



FLEUR DE LIS—PHOTOGRAPH BY HELEN PATTEE

(Treatment page 3)

THE CRAFTS

Under the management of Miss Emily Peacock, 232 East 27th Street, New York. All inquiries in regard to the various Crafts are to be sent to the above address, but will be answered in the magazine under this head.

All questions must be received before the 10th day of month preceding issue, and will be answered under "Answers to Inquiries" only. Please do not send stamped envelope for reply. The editors will answer questions only in these columns.

MAKING OF A METAL BOX

Edmund B. Rolfe.

(CONTINUED)

THE pine used as a support for the metal strip should be clear and free from graining. Such woods as oak or ash, that have alternate soft and hard fibres in them, do not give an even effect when the lines are run on them with the chasing tool. Even, clear pine, will not allow as deep an indentation across the grain as with it. Where possible, run all lines with the grain.

Nail strips of wood over sections of the metal that are not being worked on, to hold it firmly in place. Fig. 9.

To run the lines, hold the tool between the thumb and first, second and third fingers, the small finger resting on the metal. Fig. 10. A series of slight taps with a chasing hammer, Fig. 11, and a gentle pressure on the back of the tool, should run it in any direction you may choose. If it does not run, you are striking the tool too hard and it is unable to mount from the indentation, or the tool has not been made rounding enough. Inclining the tool a little backwards will help. Even strokes of the hammer must be given, if an even effect is desired. A rule can be used to mark all straight lines, which will be a help. It is better not to attempt giving the full relief to the lines at once but successively repeating the movement over the metal until the desired effect is reached. With tools of various sizes, it is possible to give relief of varying kinds.

If you wish to fill some of the spaces with a repeating motif, as for example a Celtic design of interwoven lines, you will save much time by using the following method:

Take a piece of roofing tin or a piece of an old can, a little larger than the space you wish to fill on the box. This so-called tin is sheet iron, with a coating of tin on both sides. Scrub it on one side with a hard brush and finely powdered pumice or whiting.

When clean, mark on it with a sharp point the size of the space to be filled. This will help in the proper placing of the decoration.

Take some annealed iron wire and scrape it on all sides until bright. See that the hands are free from dirt and grease. Weave the wire into knots, spirals or interwoven motifs, anything in a line design that will be in harmony with the idea you have in mind. Keep it flat on the tin and see that it properly fills the space.

Make some of the following flux:

Chloride of Zinc.....	1 part
Sal Ammoniac.....	$\frac{1}{2}$ part
Water.....	4 parts

Keep it in a wide mouthed bottle, and use a brush quill holder for applying. A metal one would corrode.

Paint the wire and the tin under it with the flux. Gradually heat the tin from beneath with a gas blowpipe and foot bellows, Figs. 12-13, or a spirit lamp, until the liquid in the flux has evaporated. Soon after this, the tin will commence to liquify, the watery appearance of it disclosing the fact. If the iron wire was clean, the tin will solder it to the sheet. If heated too much, the tin will oxidise and will not hold the wire. A little experience with

a piece of tin and some wire will soon show when to stop. When the tin is cold, remove the flux with a brush and warm water.

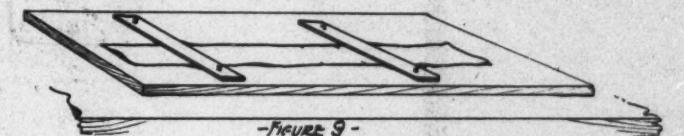
Anneal the piece of copper by heating it with the gas foot blower until it is dark red, then plunge it into water. Dry it by rubbing with sawdust. It should bend freely after this treatment.

Lay the copper on the piece of tin, over the wire work. Cover it with a piece of 1-16 inch sheet lead, and with a round headed or ball pene hammer, Fig. 14, drive the copper into the wires. The lead protects the copper from being injured.

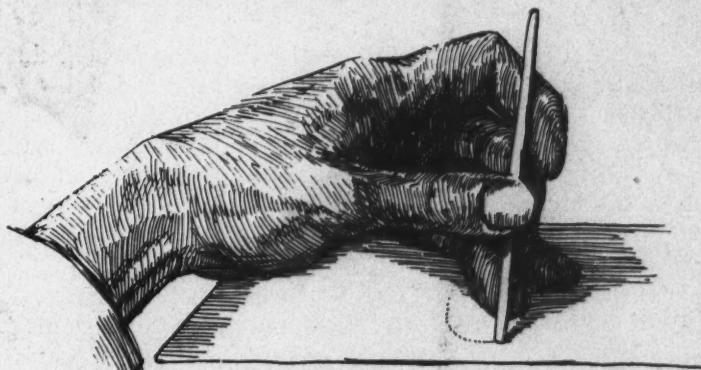
Use an anvil or other solid ground to work on and every detail will be brought out. Repeat this process for each space to be filled.

A variation of the above method is to carve the relief on a piece of brass and drive the metal over it, also small pieces of brass can be carved and used in combination with wire work on the tin.

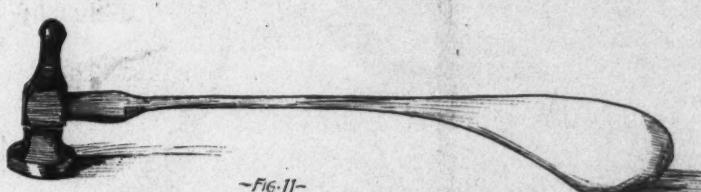
Much of the old work was done by carving the design into the brass and driving in the copper with the lead. It requires a knowledge of working backward. The results are very sharp. If care has not been taken to carve with the



-FIGURE 9-



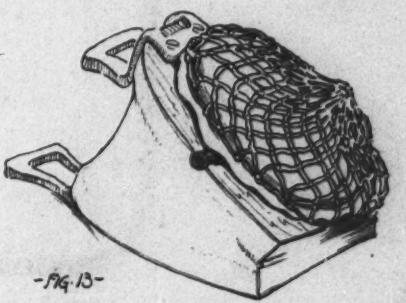
-FIGURE 10-



-FIG. 11-



Fig. 12.



-FIG. 13-

KERAMIC STUDIO

right amount of atmosphere, the relief will generally be hard in feeling.

Driving the metal over a relief gives a softer effect, as all hard edges are rounded, but the relation of the planes are still the same. It requires the less actual knowledge of the two methods.

For the carving, make some chisels from tool steel, in the way described for chasing tools, except that the ends are shaped like Fig. 15. In order to be hard enough to hold their edges, harden and temper to a yellow color. Make a series of these chisels, round nose, square nose and V-pointed, Fig. 15, and of varying sizes as they will be useful in many kinds of carving. Do not hesitate to make a new tool if you haven't one to fit into the place you are carving. Making one now will probably save time on some future work.

Melt some good pitch in an iron pot and stir in brick-dust, or plaster of Paris. Dry earth colors may be used as Venetian Red, Yellow Ochre, etc. Pitch is too brittle by itself and needs to be tempered with something else. Any degree of plasticity can be given by adding tallow. Heat the end of a block and smear the pitch on or fill an iron bowl with it. The small sheet iron bowls used by chemists for sand baths can be used if you first melt up some lead in the bottom and let it cool in it, to give it steadiness. It is then set on a sand bag or sand ring, sold by dealers in engraver's supplies.

Warm the brass and stick it on the pitch, allowing some to run up the edges to hold it securely in place. With the aid of the chisels carve the brass into the desired relief.

When this has been done, go over the surface with chasing tools and give it any degree of modeling you wish.

It is now laid on the anvil, covered with copper and the sheet lead and a proof taken. If satisfactory, cover it with the copper strip and lead and make the impress in its proper place.

To keep the relief from being damaged if struck, flow soft solder into the hollows on the back of the metal. To do this, make a brush by hammering the end of a small stick. Heat the copper underneath with the blowpipe. With the wooden brush, paint the indentations with flux. If the heat is too high, the wood of the brush will turn brown. If but gently heated, it will be possible to clean the metal, with the flux.

The solder will only hold where the metal is clean, so care should be used to clean only where the solder is wanted.

When the metal is well cleaned, raise the temperature by bringing it nearer the flame and when the flux dries, touch the copper with some soft solder* and it will immediately run wherever the metal is hot enough. Continue adding the solder until all indentations are full. It is then allowed to cool.

Place the wooden box on a sheet of copper of the same gauge that was used for the sides and run a line around it to mark off the bottom.

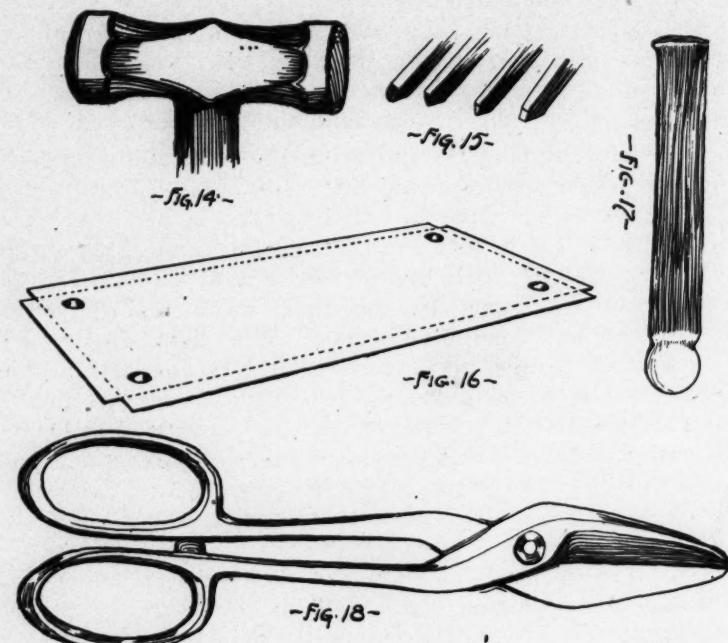
A quarter inch lap is allowed on each side. Cut or saw outside the quarter-inch lap, taking away the small squares from each corner at the same time. Fig. 16.

Next, a piece of 5-16 round bar steel is taken and the head rounded to make a doming punch, Fig. 17. Harden it and temper to a purple color. Drive it into the end of a block of wood, which will leave a cup shaped cavity. Lay

successively each corner of the bottom sheet above the hole and gently drive the metal into it. This will make four small hemispherical feet, to raise the box above whatever it is set on, and keep the corners from scratching. Each cavity is then filled with solder.

The laps are beaten into shape and left till later.

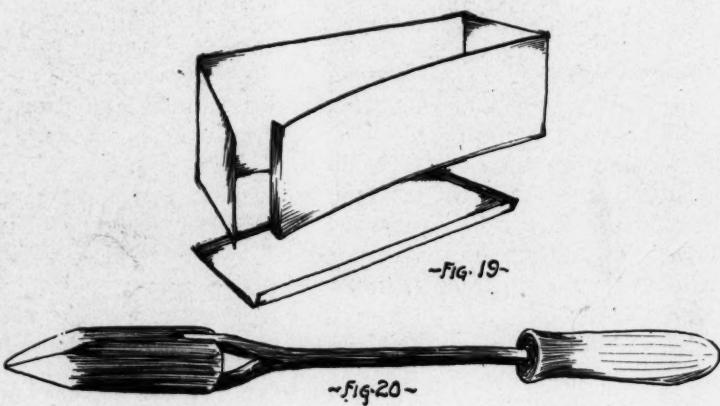
It will be necessary to line the inner surfaces of the box. A piece is cut with the snips, Fig. 18, for the bottom, allowing laps of $\frac{1}{4}$ inch and the corners removed as the outer bot-



tom piece was made. A strip is cut for the inner sides but no lap left on the upper edge. A lap is left on one end, Fig. 19.

Fit the outer and inner covering in place and when they are ready, remove and "tin" all joints and laps that are to be soldered. This is done by carefully heating the metal and rubbing the wooden brush, only where the solder is to run, then raising the heat and touching the heated metal with solder till all the clean parts have an even coat of tin. If too much accumulates in one spot, it can be evened by wiping quickly while hot, with a rag. When all joints are nicely tinned, fit the sides to the bottoms, and with the aid of wooden blocks and iron wire, tie together. See that the laps touch each other on the tinned surfaces. Heat a soldering iron (copper), Fig. 20, hot, but not red, and lay on the joint until the metal under the soldering copper is warm enough for the solder to run.

This can be learned by watching the edge of the joint and noting the reflection of light on the solder. When the



*Note. Soft solder is composed of varying parts of tin and lead. It is commonly called plumbers' solder and may be obtained at most plumbing shops or hardware stores. Tin alone can be used on copper.

solder is solid the color is white but when melted it has a liquid appearance which can be soon distinguished.

Move the soldering to a new part as soon as the solder runs. If the joint does not fill, additional solder may be applied to the joint and be drawn in, if the metal is hot enough.

When the sides of each lining are joined and the bottoms soldered on, the next step is to fit in between them the wooden frame.

(TO BE CONTINUED)

ART IN PEWTER

Jules Brateau

(CONTINUED)

Now, tipping the mould on the table, the founder removes the pincers holding the caps. The one at the base, forming the foot of the goblet, comes away almost of itself. He removes the other core forming the interior of the goblet by inserting a piece of hard wood into the hole previously occupied by the dowel which held it centered with the small core of the foot. With light strokes of the mallet he presses upon the large core to loosen the shapes. He removes them one by one, by the wooden handles. The pewter issues from the mould beautiful and brilliant with its channels and the three seams. The founder grasps it with his hand protected by felt, and places it carefully on a soft bed of cloth, for while the object is hot, a blow will shatter it.

The detailed description of the casting is much longer than the operation itself, and, as in all trades in which manual labor plays a great part, the sight of the processes is more instructive than the best explanations.

In casting successive goblets the details above described must be scrupulously observed.

The casting of a tray is less complicated, because the mould is more simple in construction.

In order to cool the mould after casting, it is immersed gradually and almost wholly in a tub of hot water, instead of being pressed with a cloth. In this case, the mould, beside being held in the pincers applied for the purpose of handling it easily, must be clamped at various points of its circumference, as otherwise, during the immersion, it would burst open and allow the metal to escape.

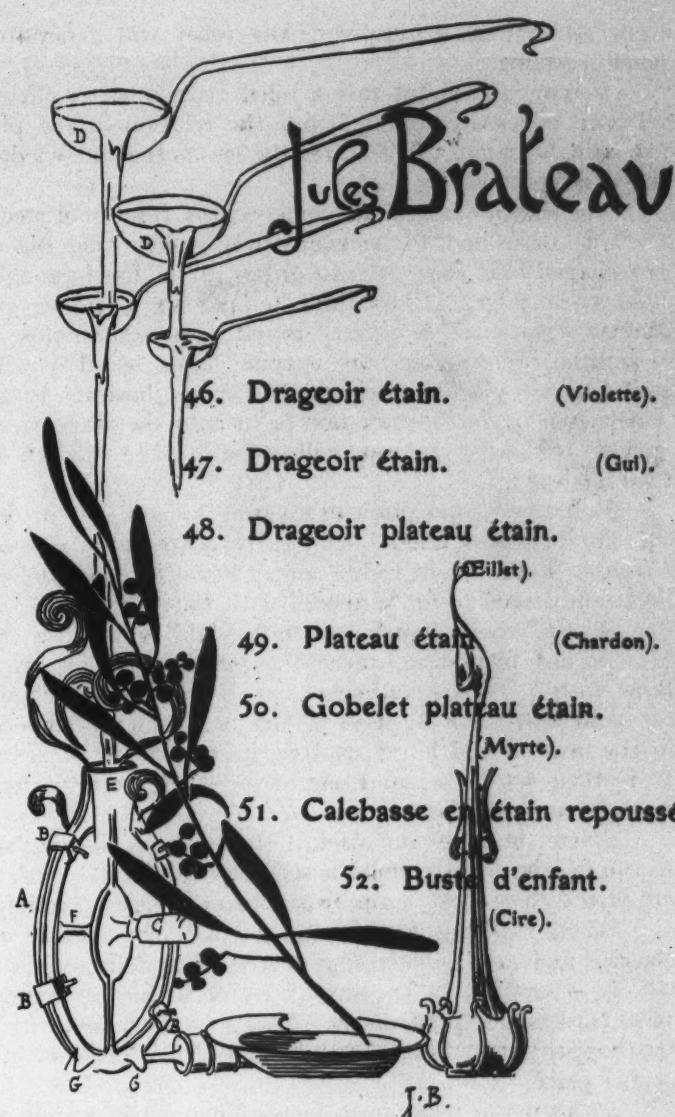
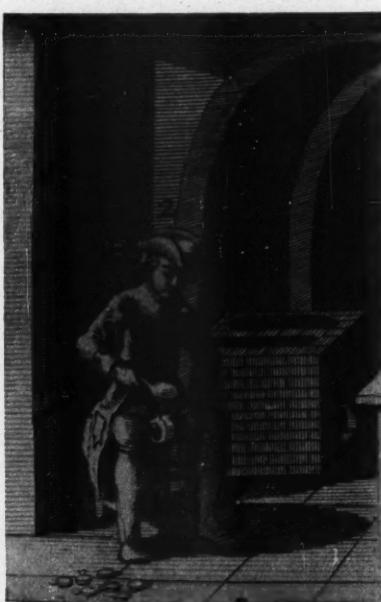


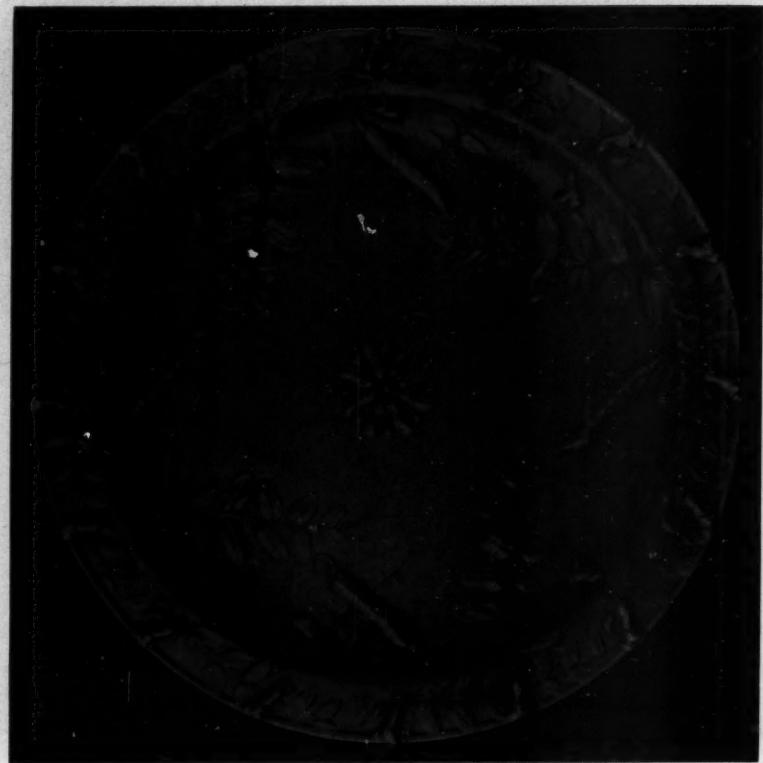
Fig. 24²—Page from an exhibition catalogue, in which each exhibitor had to submit a design concerning his work and tools. A, mould of tray; B, steel clamps; C, wood handle; DD, ladies to pour pewter; E, neck; F, braces; G, feet.

Let us now return to the goblet, in order to finish it and make it ready for service. The jet, or run, is cut at its base by sharp pincers, shears, or saw. A soldering iron may also be used (Fig. 25, B B), and when there are many jets to be cut, the use of the gas iron is preferable, since it simplifies the operation (Fig. 25, E).

Nothing remains to mar the exterior of the goblet but the traces of the seams of the three sections, which ap-



Illus. 57, 58 and 59—Pewterers pouring pewter into small moulds held between the knees (from Salmon's treatise, 1788).



Illus. 60 and 61.—Pewter trays by Jules Brateau, obtained by the founding process described in these pages.

pear as fine lines running from the top to the edge of the standard of the piece, delicate in proportion as the mould has been well adjusted, but in all cases plainly visible. The founder is rarely able to obliterate these seams, and when they traverse a decorative detail, the hand of the engraver alone can repair the injury thus effected. If, however, they follow their course over a flat surface, the ordinary workman can erase them with sharp scrapers (Fig. 26).

At the points where the channels, have remained on the piece, and are too thick to be removed with the scraper,

as at the funnel of the "neck," an *ecouenne*, a sort of rasp, is used. This instrument, unlike a file, cuts squarely, and its end may be sharp, blunt, half round, or bent (Fig. 27, A B B C D).

At the bottom of the goblet there is a hole at the junction of the core of the body with that of the foot; the hole having been produced by the dowel which served to center and hold them. This must be closed with pewter of the same alloy, taken from the crucible with a small ladle. To do this, the body of the goblet is filled with a tampon of felt, or a bag of sand, the piece is turned upside down, and molten pewter poured into the hole. The adjacent parts have been previously cleansed and scraped, since even the small quantity of glazing liable to remain on the section, would prevent the complete union which this precaution and the red heat of the metal assure.

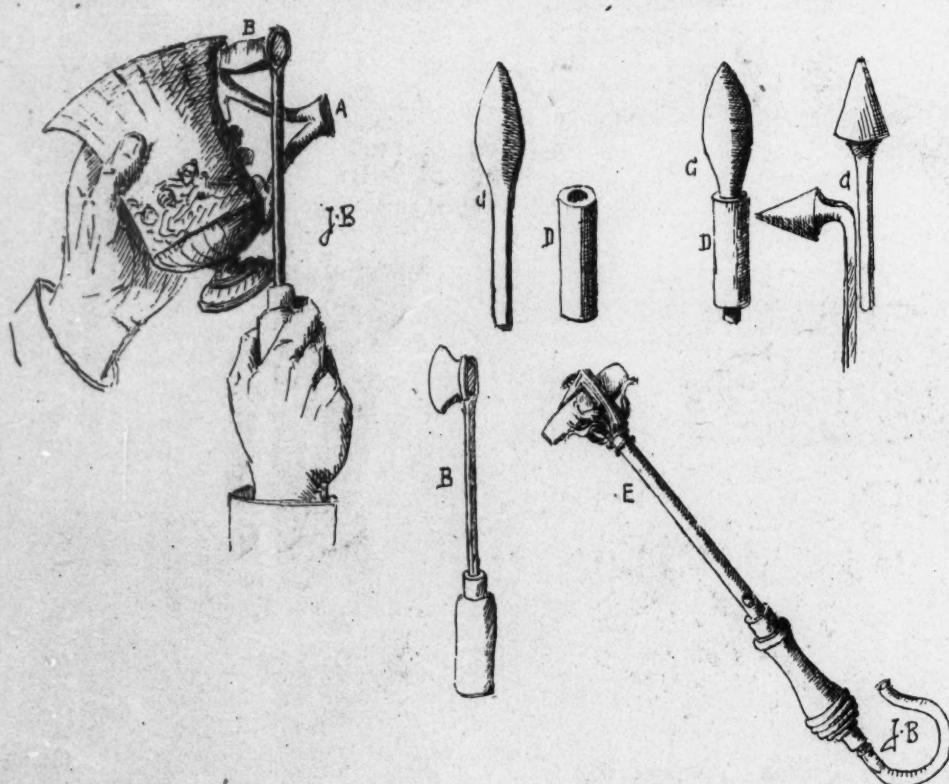


Fig. 25.—Different kinds of soldering irons. A, pewter cast after founding; BB, soldering irons in copper; CCC, soldering irons in iron; D, wood handle; E, soldering iron in copper for gas heat.

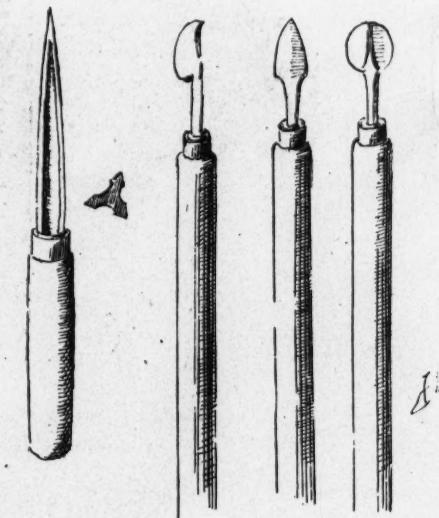


Fig. 26.—Different kinds of scrapers for pewter work.

The interior of the goblet, however well cast, requires further care. It must be put on the hand or foot-lathe, which is an indispensable part of the founder's equipment. It is turned by a pedal, or by a crank, acting upon a fly-wheel, which itself, by means of a tense cord of cat-gut, transmits rapid motion to the lathe.

At the end, or "chuck," of the lathe is placed a round, hollow receptacle, technically called a "mandrel" (Fig. 28, B).

This box is made of well seasoned alder, beech or elm; it is sawed into slits at equal points of the circumference, and encircled by a broad outside ring (Fig. 28, D), by means of which it is able to expand and contract, as the ring approaches or recedes from the edge of the box; allowing the goblet to be inserted, or removed.

The workman, leaning a chisel with rounded head and

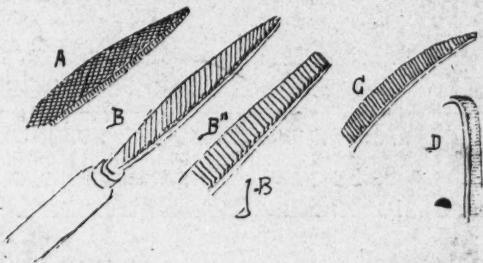


Fig. 27.—Different kinds of files for pewter work.

wooden handle upon the support at the front of the lathe, applies this tool to the mouth of the goblet. With a light, firm stroke, and careful to avoid scratching, he inserts his sharp tool and forces it to the bottom of the goblet, cutting away a very slight quantity of metal, as the goblet was made of the desired thickness, and was nearly perfect before this last process. The workman now fixes a tampon of woolen fabric at the end of a stick, dips it in oil, fine pumice, and rotten stone, and with this mixture effaces the marks of the chisel. This done, he burnishes the piece to give a brilliant surface.

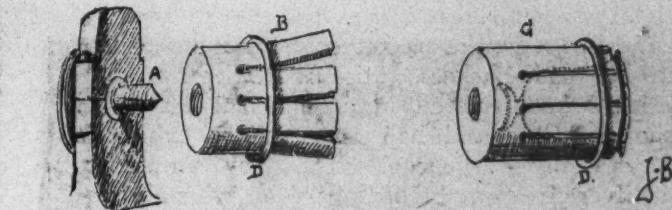


Fig. 28.—A, chuck of the lathe; B, mandrel open; C, mandrel closed; D, metal ring (often in pewter).

The burnisher is a sort of round, curved hook of polished steel which is rubbed from time to time upon chamois skin sprinkled with red polish, or upon pewter in order to keep it in good condition.

The burnisher should lightly pass over the whole inside of the goblet; the latter being dampened with soap suds to prevent it from adhering to the burnisher.

Beside turning, a variety of round brushes of iron, copper, nickel, bristle and even chamois, are attached to the lathe, and used according to the requirements of special cases; the object to be polished being held in the hand and in front of the brush.

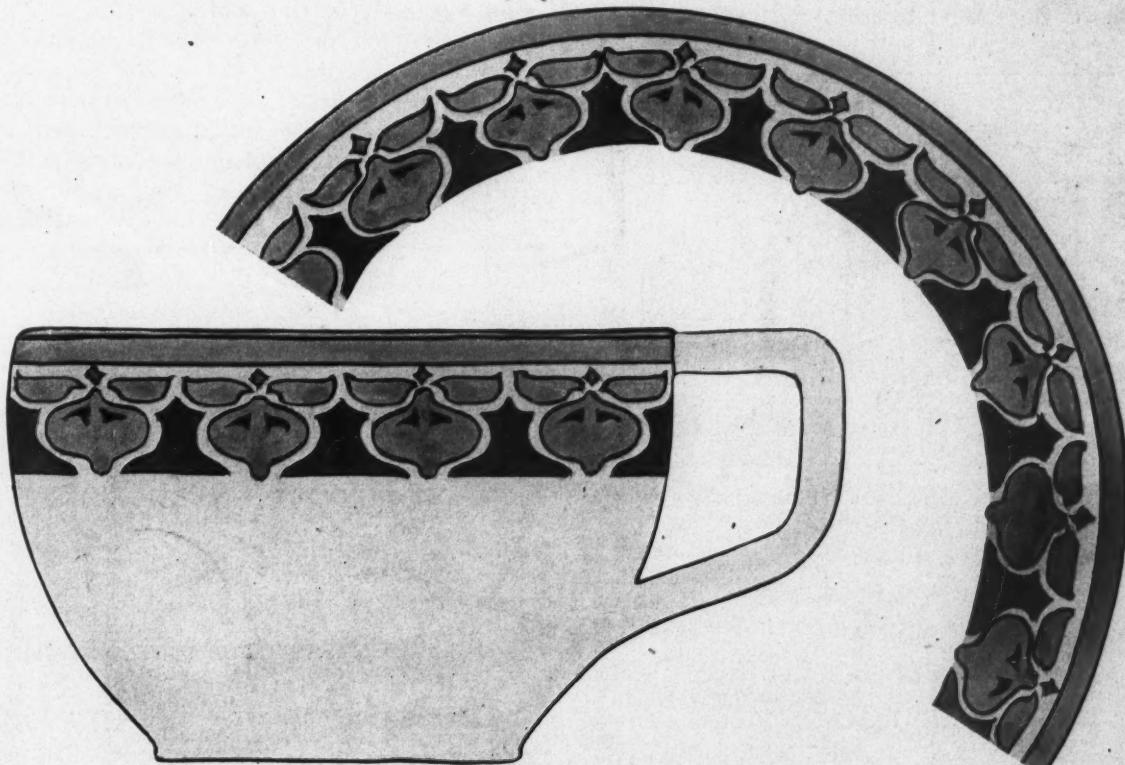
The foot of the goblet is also finished on the lathe.

At this point, a metal wire hair brush chosen according to the work, and dipped in pumice and rotten stone, is attached to the lathe and lightly swept over the whole decorated surface. Then, the goblet is brushed with soap suds, and dried in saw dust, and the long work is at an end.

(TO BE CONTINUED)

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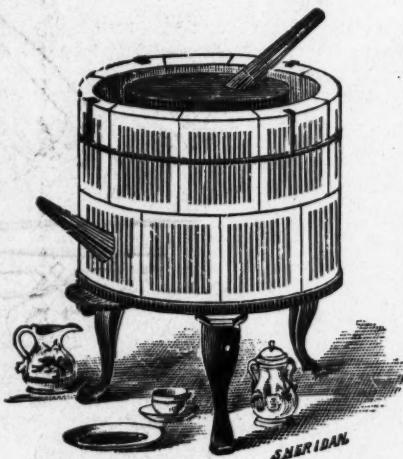
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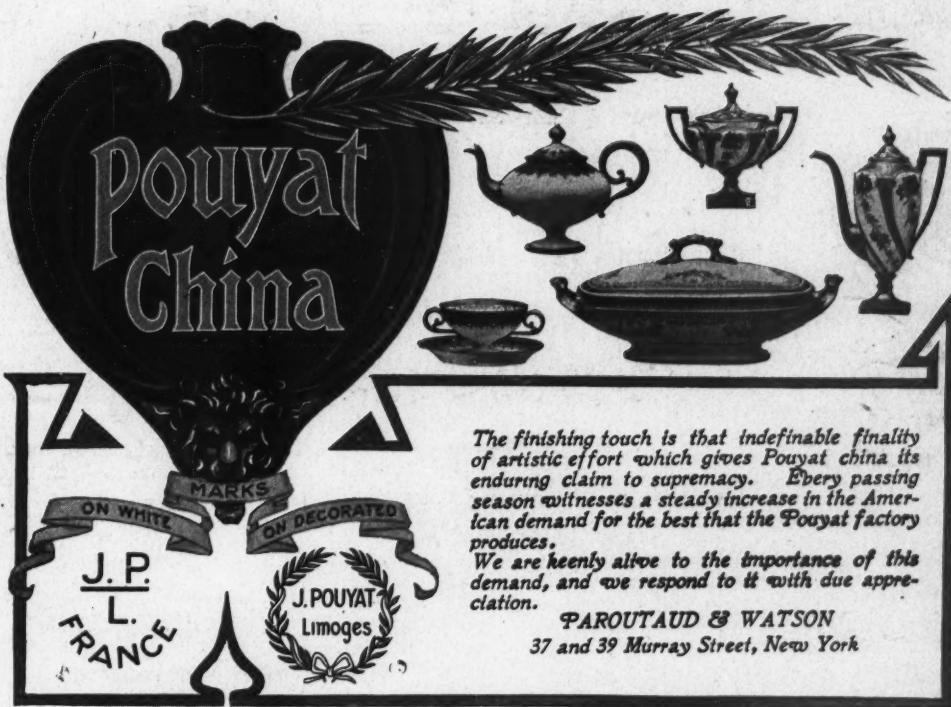
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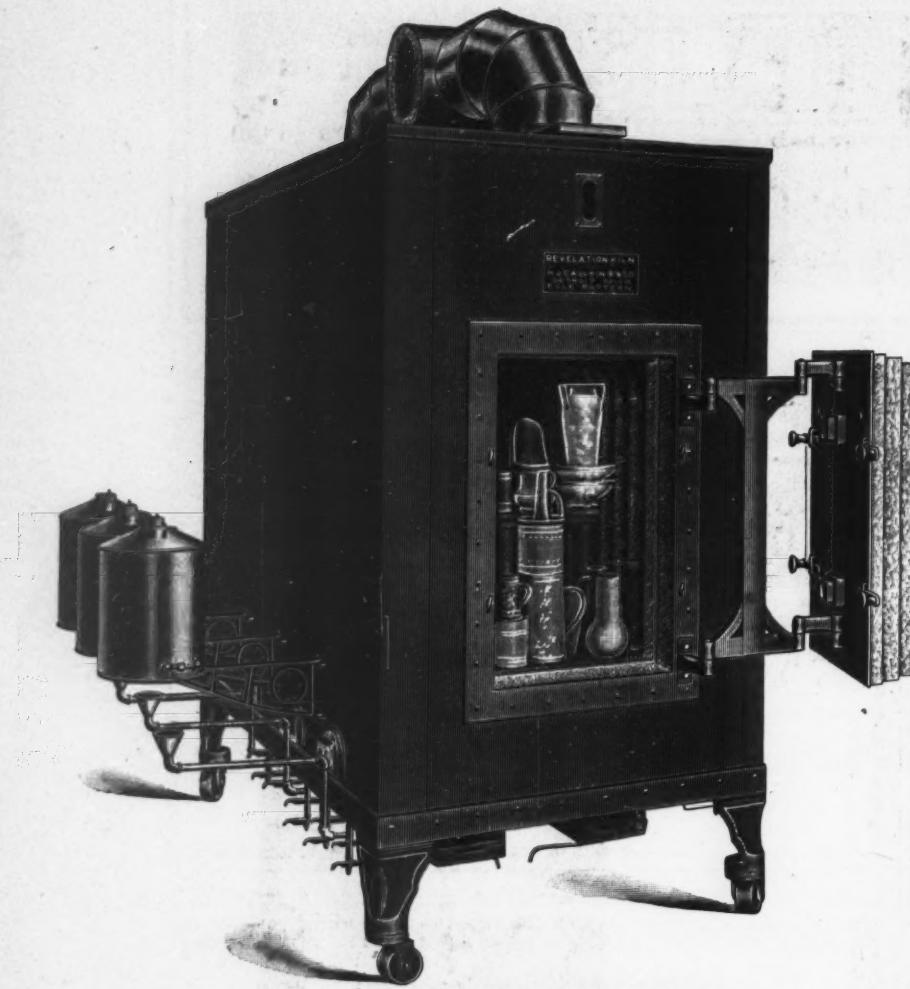
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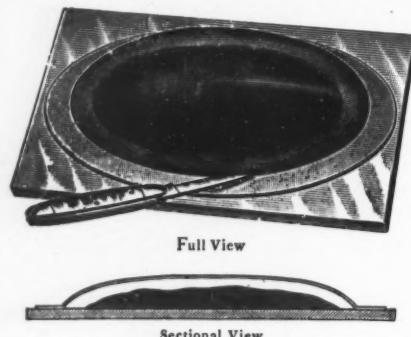
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SUPPLEMENT TO
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